

DEPARTMENT OF TRANSPORTATION**DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-026504**Date Inspected:** 10-Oct-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** Pat Swain**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** OBG Sections**Summary of Items Observed:**

This Quality Assurance (QA) Inspector, Craig Hager was on site at the job site between the times noted above. This QA Inspector was on site to randomly observe Quality Control (QC) personnel perform Non-Destructive Testing (NDT) and monitor American Bridge/Fluor (ABF) welding operations. This Quality Assurance (QA) Inspector, Craig Hager observed the following.

Orthotropic Bridge Girder (OBG) Sections:

12E/13E D1 thru D3: This QA Inspector randomly observed QC Inspector Pat Swain working with ABF welding personnel James Zhen (#6001), Xiao Jian Wan (#9677), Wai Kitlai (#2953) and Jin Pei Wang (#7299) too set the welding parameters; amperage, voltage and travel speed for using the Flux Cored Arc Welding (FCAW) process to start the seal welding of the backing bar. This QA Inspector observed a hand held torch was being used to help preheat the weld joint prior to welding. This QA Inspector observed QC Inspector Pat Swain using an electronic temperature gauge to verify the preheat temperature was greater than 150°F. QC Inspector Pat Swain informed this QA Inspector he was aware the preheat for this weld joint was to be continuous from start to completion with a temperature of 150°F for tack/seal welding and 200°F for the Submerged Arc Welding (SAW). This QA Inspector observed ABF welding personnel at the following locations starting the fillet/seal weld; Xiao Jian Wan (#9677) at D-3, Wai Kitlai (#2953) at the middle of D-2 and Jin Pei Wang (#7299) at the end of D-2. This QA Inspector randomly observed as QC Inspector Pat Swain verified the following parameters; Xiao Jian Wan (#9677) at 280 amperes and 24.6 volts with a travel speed of 350 mm per minute to produce a heat input of 1.18 Kj per mm, Wai Kitlai (#2953) at 244 amperes and 24.4 volts at a travel speed of 350 mm per minute to produce a heat input of 1.02 Kj per mm and Jin Pei Wang (#7299) at 280 amperes and 24.6 volts at a travel speed of 350 mm

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per minute to produce a heat input of 1.18 Kj per mm. The welding observed appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F3200-2. This QA Inspector checked the preheat after welding had started and observed several areas were close to reaching the minimum temperature of 150°F. This QA Inspector informed QC Inspector Pat Swain of the observation and was present when QC Inspector Pat Swain informed ABF welding foreman James Zhen (#6001) that he may need one person with a torch to continuously perform preheating during welding in order to maintain the continuous preheat. This QA Inspector observed ABF welding foreman James Zhen (#6001) using a hand held gas torch to preheat various locations on weld joint D-2. This QA Inspector observed at D-3, which is separated from D-2 by a vertical stiffener that no one appeared to be maintaining the preheat temperature at this location due to the separation / vertical stiffener. This QA Inspector crawled through the various stiffeners to gain access to D-3 and observed the base metal temperature ranged from approximately 80°F to slightly above the minimum of 150°F. This QA Inspector observed the seal welding had been completed except for one pass approximately 130 mm long at the beginning of the weld joint. This QA Inspector informed QC Inspector Pat Swain of the observation. ABF welding foreman James Zhen (#6001) overheard the conversation and informed QC Inspector Pat Swain the gas bottle used for preheating this location was empty and that he had sent someone to change it. QC Inspector Pat Swain asked ABF welding foreman James Zhen (#6001) if the induction heating blankets had been installed under D-3 and was informed they had only been positioned under weld D-2. This QA Inspector and QC Inspector Pat Swain talked about the continuous preheat requirement, the temperatures already observed (80°F at several areas) and the lack of the induction heating at this location. QC Inspector Pat Swain informed this QA Inspector he would most likely be writing a Non-Conformance Report (NCR) this date to document the lack of maintaining the continuous preheat at 12E/13E weld joint D-3. Later this date QC Inspector Pat Swain stated he had spoken with his supervisors and confirmed he would be issuing the NCR. This QA Inspector observed the fillet / seal welding appeared to be completed and that ABF personnel were preparing to begin the SAW process. This QA Inspector went outside the OBG section and observed ABF personnel had removed the induction heating blankets, were in the process of removing the fit up aids and re-installing the induction heating blankets, see photo below. This QA Inspector checked the temperature of the weld joint from below (outside) and observed at D-2 the temperature was greater than 150°F. ABF welding foreman James Zhen (#6001) informed this QA Inspector that ABF welding personnel Xiao Jian Wan (#9677) was inside the OBG section keeping weld joint D-2 preheated with a gas torch. Later this date this QA Inspector observed the SAW equipment was being set up, but did not observe SAW performed this date.

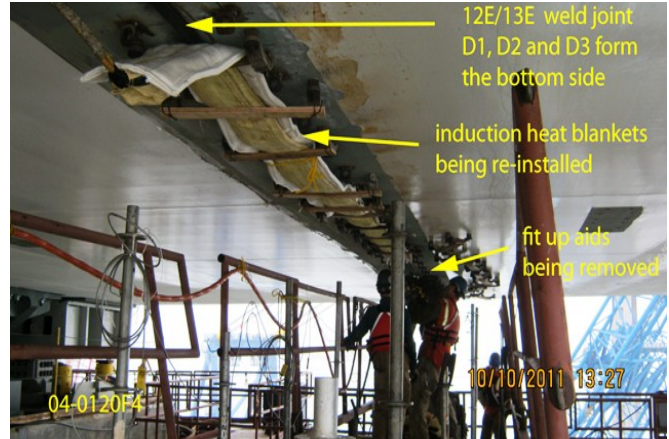
This QA Inspector verbally informed QA SPCM Lead Inspector, Daniel Reyes, of the issues noted in this report for compliance therefore for further details of issues of significance see QA SPCM Lead Inspector, Daniel Reyes, Daily Inspection Report (6031) for this date.

Summary of Conversations:

This QA Inspector had general conversations with American Bridge/Fluor (ABF) and Caltrans personnel during this shift. Except as described above and noted above there were no notable conversations.

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Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy (510) 385-5910, who represents the Office of Structural Materials for your project.

Inspected By: Hager,Craig

Quality Assurance Inspector

Reviewed By: Levell,Bill

QA Reviewer
